

METHOD AND APPARATUS TO COMPENSATE AM-PM DELAY MISMATCH IN ENVELOPE RESTORATION TRANSMITTER

ABSTRACT OF THE DISCLOSURE

An RF transceiver includes an Envelope Restoration (ER) transmitter (TX) and a receiver (RX). A method includes providing the TX with at least one programmable delay element in at least one of an AM path and a PM path; making an RF connection between an output of the TX and an input of the RX; and responsive to an output of the RX when receiving a signal through the RF connection, determining at least one delay value for use in programming the at least one programmable delay element. Making an RF connection includes measuring an effect of a delay mismatch between the AM path and the PM path for use in determining the at least one delay value. In one embodiment measuring performs a power measurement such as an Adjacent Channel Leakage Ratio (ACLR) power measurement, the delay value is determined as being a value that minimizes the ACLR, and the RX is tuned, when receiving a signal through the RF connection, to an RX carrier frequency that is about one channel spacing away from a TX carrier frequency. In another embodiment measuring performs an Own-Channel Power (OCP) power measurement, the delay value is determined as being a value that maximizes the OCP, and the RX is tuned to an RX carrier frequency that is substantially equal to a TX carrier frequency. In another embodiment measuring performs a signal quality measurement, such as a Bit Error Ratio (BER) measurement, the delay value is determined as being a value that minimizes the BER, and the RX is tuned to an RX carrier frequency that is substantially equal to a TX carrier frequency.